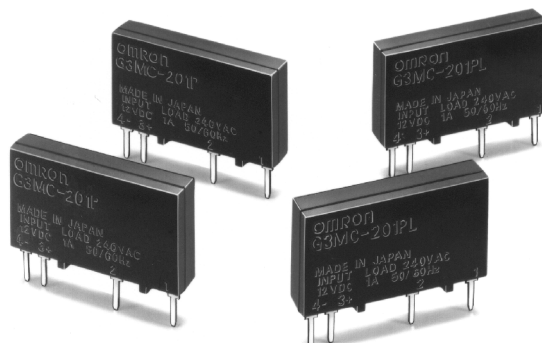


Solid State Relay G3MC

Compact, Low-cost SSR with Reinforced Insulation

- Small bottom surface area (approx. 80% of the conventional G3MB's) and ideal for close PCB mounting.
- DC input and AC output for an applicable load of 1 A at 40°C.
- Compact, thin-profile SSR of monoblock construction with an all-in-one frame incorporates a PCB, terminals, and a heatsink.
- VDE certified models available.



Ordering Information

To Order: Select the part number and add the desired coil voltage rating, (e.g., G3MC-101P-DC12).

Isolation	Zero-cross function	Built-in snubber circuit	Rated output load	Rated input voltage	Part number		
Phototriac	Yes	Yes	1 A at 100 to 120 VAC (75 to 132 VAC)	5 VDC	G3MC-101P		
				12 VDC			
				24 VDC			
	No			Yes	1 A at 100 to 120 VAC (75 to 132 VAC)	5 VDC	G3MC-101PL
						12 VDC	
						24 VDC	
	Yes	No	2 A at 100 to 120 VAC (75 to 132 VAC)			5 VDC	G3MC-102P
						12 VDC	
						24 VDC	
	No			No	2 A at 100 to 120 VAC (75 to 132 VAC)	5 VDC	G3MC-102PL
						12 VDC	
						24 VDC	
Yes	Yes	1 A at 100 to 240 VAC (75 to 264 VAC)	5 VDC			G3MC-201P	
			12 VDC				
			24 VDC				
No			Yes	1 A at 100 to 240 VAC (75 to 264 VAC)	5 VDC	G3MC-201PL	
					12 VDC		
					24 VDC		
Yes	No	2 A at 100 to 240 VAC (75 to 264 VAC)			5 VDC	G3MC-202P	
					12 VDC		
					24 VDC		
No			No	2 A at 100 to 240 VAC (75 to 264 VAC)	5 VDC	G3MC-202PL	
					12 VDC		
					24 VDC		

Specifications

■ RATINGS (AMBIENT TEMPERATURE 25°C)

Input

Rated voltage	Operating voltage	Impedance	Voltage levels	
			Must operate voltage	Must dropout voltage
5 VDC	4 to 6 VDC	300Ω ±20%	4 VDC max.	1 VDC min.
12 VDC	9.6 to 14.4 VDC	800Ω ±20%	9.6 VDC max.	
24 VDC	19.2 to 28.8 VDC	1.6kΩ ±20%	19.2 VDC max.	

Note: Each model has 5-VDC, 12-VDC, and 24-VDC input versions.

Output

Part number	Applicable load			
	Rated load voltage	Load voltage range	Load current	Surge current
G3MC-101P(L)	100 to 120 VAC	75 to 132 VAC	0.1 to 1 A	8 A (60 Hz, 1 cycle)
G3MC-201P(L)	100 to 240 VAC	75 to 264 VAC		
G3MC-102P(L)	100 to 120 VAC	75 to 132 VAC	0.1 to 2 A	30 A (60 Hz, 1 cycle)
G3MC-202P(L)	100 to 240 VAC	75 to 264 VAC		

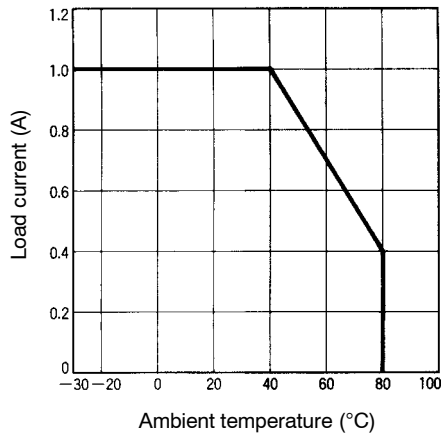
■ CHARACTERISTICS

Item	G3MC-101P / G3MC-102P	G3MC-101PL / G3MC-102PL	G3MC-201P / G3MC-202P	G3MC-201PL / G3MC-202PL
Operate time	1/2 of load power source cycle + 1 ms	1 ms max.	1/2 of load power source cycle + 1 ms	1 ms max.
Release time	1/2 of load power source cycle + 1 ms)			
Output ON voltage drop	1.6 V (RMS) max.			
Leakage current	1 mA max. (at 100 VAC)		1.5 mA max. (at 200 VAC)	
Insulation resistance	1,000 MΩ min. (at 500 VDC)			
Dielectric strength	2,500 VAC, 50/60 Hz for 1 min			
Vibration resistance	Malfunction: 10 to 55 Hz, 0.75-mm double amplitude			
Shock resistance	Malfunction: 1,000 m/s ² (approx. 100G)			
Ambient temperature	Operating: -30°C to 80°C (with no icing or condensation) Storage: -30°C to 100°C (with no icing or condensation)			
Approved standards	UL508 File No. E64562, CSA C22.2 (No. 14, No. 950) File No. LR35535, EN60950 File No. 5925UG			
Ambient humidity	Operating: 45% to 85%			
Weight	Approx. 2.5 g			

Engineering Data

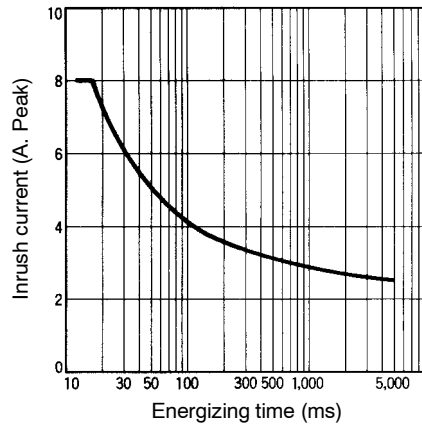
■ G3MC-101P(L), G3MC-201P(L)

Load Current vs. Ambient Temperature Characteristics



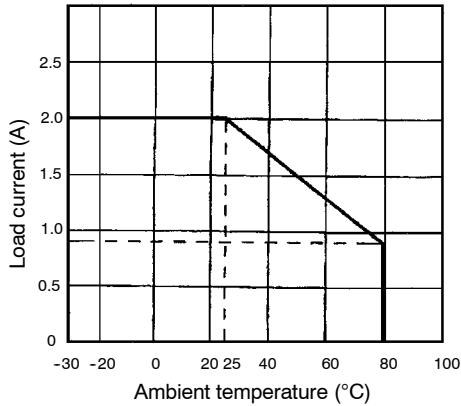
Inrush Current Resistivity

One cycle, non-repetitive (Keep the inrush current to half the rated value if it occurs repeatedly.)



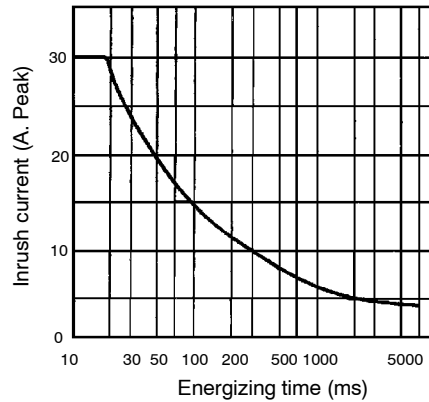
■ G3MC-102P(L), G3MC-202P(L)

Load Current vs. Ambient Temperature Characteristics



Inrush Current Resistivity

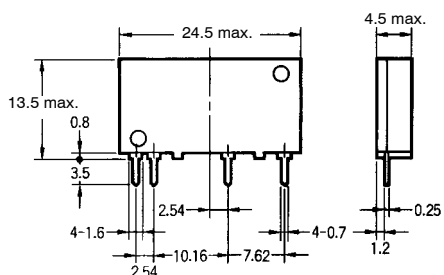
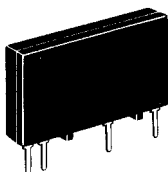
Once cycle, non-repetitive (Keep the inrush current to half the rated value if it occurs repeatedly.)



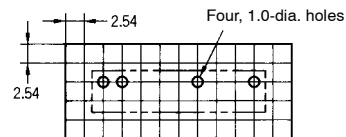
Dimensions

Unit: mm (inch)

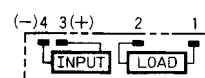
G3MC-101P
G3MC-101PL
G3MC-201P
G3MC-201PL



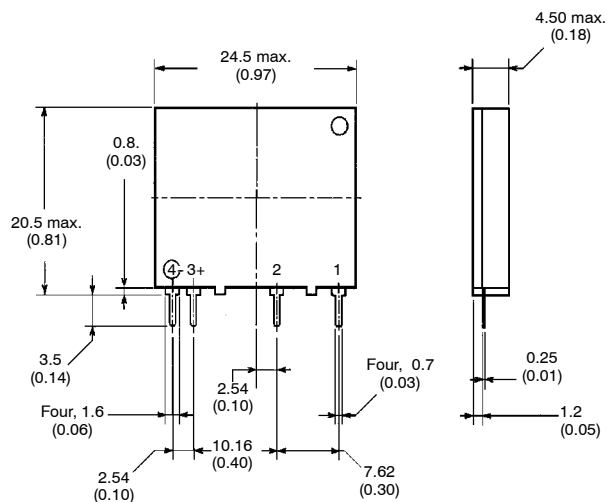
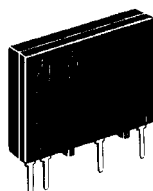
PCB Dimensions
(Bottom View)



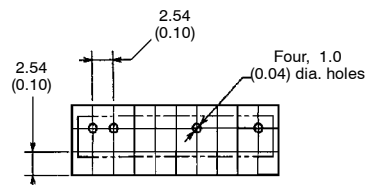
Terminal Arrangement
(Bottom View)



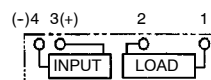
G3MC-102P
G3MC-102PL
G3MC-202P
G3MC-202PL



PCB Dimensions
(Bottom View)



Terminal Arrangement
(Bottom View)



Precautions

■ GENERAL PRECAUTIONS

Do not touch the terminals of the SSR while power is being supplied to the SSR. The terminals are charged with the power, and an electric shock may be received by touching the terminals.

The built-in capacitor may have a residual voltage after the SSR is turned off. Be sure to discharge the residual voltage before touching the terminals of the SSR, otherwise an electric shock may be received.

■ MOUNTING

1. Make sure that no excessive voltage or current is imposed on or flows to the input or output circuit of the SSR, otherwise the SSR may malfunction or burn.
2. Solder the terminals of the SSR properly under the required soldering conditions. The SSR may be abnormally heated and burn if power is supplied to the terminals soldered incorrectly.
3. Do not short-circuit the load of the SSR while power is supplied to the SSR. Do not short-circuit the power supply through the SSR. The SSR may be damaged, malfunction, or burn if the load or power supply is short-circuited.

■ CORRECT USE

The terminals of the SSR are highly heat-conductive. Each terminal must be soldered within 10 s at 260°C or within 5 s at 350°C.

The SSR is of a thin-profile construction. To maintain the vibration resistance of the SSR, make sure that the space between the SSR and PCB is 0.1 mm maximum. Lifting of the PCB can be prevented by setting the hole diameter of the PCBs on both sides slightly smaller than the actual terminal dimension.

Select the model without the zero-cross function when using the Unit for phase control output.

The casing works as a heat sink. When mounting two or more Units closely, make sure that the Units are properly ventilated by taking ambient temperature rises into consideration. If Units are closely mounted and used in places with no ventilation, the load current of each Unit must be 1/2 of the rated load current.

■ PROTECTIVE ELEMENT

No overvoltage absorption element is built in. Therefore, if the G3MC is connected to an inductive load, be sure to connect the overvoltage absorption element.

Omron Electronic Components, LLC

Terms and Conditions of Sales

I. GENERAL

- Definitions:** The words used herein are defined as follows.
 - Terms:** These terms and conditions
 - Seller:** Omron Electronic Components LLC and its subsidiaries
 - Buyer:** The buyer of Products, including any end user in section III through VI
 - Products:** Products and/or services of Seller
 - Including:** Including without limitation
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- Cancellation: Etc:** Orders are not subject to rescheduling or cancellation unless Buyer indemnifies Seller fully against all costs or expenses arising in connection therewith.
- Force Majeure:** Seller shall not be liable for any delay or failure in delivery resulting from causes beyond its control, including earthquakes, fires, floods, strikes or other labor disputes, shortage of labor or materials, accidents to machinery, acts of sabotage, riots, delay in or lack of transportation or the requirements of any government authority.
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 - All sales and shipments of Products shall be FOB shipping point (unless otherwise stated in writing by Seller), at which point title to and all risk of loss of the Products shall pass from Seller to Buyer, provided that Seller shall retain a security interest in the Products until the full purchase price is paid by Buyer;
 - Delivery and shipping dates are estimates only; and
 - Seller will package Products as it deems proper for protection against normal handling and extra charges apply to special conditions.
- Claims:** Any claim by Buyer against Seller for shortage or damage to the Products occurring before delivery to the carrier must be presented in detail in writing to Seller within 30 days of receipt of shipment.

III. PRECAUTIONS

- Suitability:** IT IS THE BUYER'S SOLE RESPONSIBILITY TO ENSURE THAT ANY OMRON PRODUCT IS FIT AND SUFFICIENT FOR USE IN A MOTORIZED VEHICLE APPLICATION. BUYER SHALL BE SOLELY RESPONSIBLE FOR DETERMINING APPROPRIATENESS OF THE PARTICULAR PRODUCT WITH RESPECT TO THE BUYER'S APPLICATION INCLUDING (A) ELECTRICAL OR ELECTRONIC COMPONENTS, (B) CIRCUITS, (C) SYSTEM ASSEMBLIES, (D) END PRODUCT, (E) SYSTEM, (F) MATERIALS OR SUBSTANCES OR (G) OPERATING ENVIRONMENT. Buyer acknowledges that it alone has determined that the Products will meet their requirements of the intended use in all cases. Buyer must know and observe all prohibitions of use applicable to the Product/s.
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 - Energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
 - Systems, machines, and equipment that could present a risk to life or property.
- Prohibited Use:** NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.
 - Motorized Vehicle Application:** USE OF ANY PRODUCT/S FOR A MOTORIZED VEHICLE APPLICATION MUST BE EXPRESSLY STATED IN THE SPECIFICATION BY SELLER.
 - Programmable Products:** Seller shall not be responsible for the Buyer's programming of a programmable Product.

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- Warranty:** Seller's exclusive warranty is that the Products will be free from defects in materials and workmanship for a period of twelve months from the date of sale by Seller (or such other period expressed in writing by Seller). SELLER MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT ALL OTHER WARRANTIES, NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCTS.
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- Performance Data:** Performance data is provided as a guide in determining suitability and does not constitute a warranty. It may represent the result of Seller's test conditions, and the users must correlate it to actual application requirements.
- Change In Specifications:** Product specifications and description may be changed at any time based on improvements or other reasons. It is Seller's practice to change part numbers when published ratings or features are changed, or when significant engineering changes are made. However, some specifications of the Product may be changed without any notice.
- Errors And Omissions:** The information on Seller's website or in other documentation has been carefully checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical or proofreading errors or omissions.
- Export Controls:** Buyer shall comply with all applicable laws, regulations and licenses regarding (a) export of the Products or information provided by Seller; (b) sale of Products to forbidden or other proscribed persons or organizations; (c) disclosure to non-citizens of regulated technology or information.

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- Law:** These Terms are governed by Illinois law (without regard to conflict of laws). Federal and state courts in Illinois have exclusive jurisdiction for any dispute hereunder.
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- Severability:** If any provision hereof is rendered ineffective or invalid, such provision shall not invalidate any other provision.

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 - (ii) Energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
 - (iii) Use in consumer products or any use in significant quantities.
 - (iv) Systems, machines and equipment that could present a risk to life or property. Please know and observe all prohibitions of use applicable to this product.

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6. **RoHS Compliance.** Where indicated, our products currently comply, to the best of our knowledge as of the date of this publication, with the requirements of the European Union's Directive on the Restriction of certain Hazardous Substances ("RoHS"), although the requirements of RoHS do not take effect until July 2006. These requirements may be subject to change. Please consult our website for current information.

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ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

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